IL-0237-2

ILLINOIS STATE GEOLOGICAL SURVEY
NATURAL RESOURCES BUILDING
PEABODY EAST OF SOUTH SIXTH
URBANA, ILLINOIS 61801
TELEPHONE 217 344-1481
JOHN C. FRYE, CHIEF

P. O. Box I
Warrenville, Illinois 60555
December 31, 1970

Mr. Charles E. Clark, Chief
Bureau of Land Pollution Control
Environmental Protection Agency
2200 Churchill Road
Springfield, Illinois 62706

Dear Mr. Clark:

This is in response to your request of December 17th, 1970, for a description of the hydrogeology in the vicinity of a solid waste disposal site located in the NW¼ of Section 19, T. 35 N., R. 10 E., and in the NE¼ of Section 24, T. 35 N., R. 9 E., Will County.

The site was visited on December 24, 1970. It is located along the north side of the DesPlaines River valley in what appears, on the topographic map, to have been an abandoned gravel pit or quarry. A small intermittent stream enters the site from the north and flows beneath it through a culvert. On leaving the site, this stream flows for approximately a quarter of a mile to the south where it enters a series of small lagoons. According to the topographic map, the stream then continues to the east, and then to the south, where it becomes influent in the gravels bordering the Illinois and Michigan Canal.

No exposures of subsurface materials were visible on the site itself, however, records of water wells in the files of the Illinois State Geological Survey indicate that the glacial drift south of the site, in the valley, is probably less than 20 feet thick, and composed primarily of relatively permeable sand and gravel. These records are not complete and are relatively poor in this area. Regional maps in the files of the State Geological Survey also indicate that the glacial drift in this area is approximately 20 feet thick and that it overlies the Silurian dolomite aquifer. These maps do not show sand and gravel deposits present within the drift sequence. Borings should be made if more reliable data is desired.

The elevation of the water in the creek which flows beneath the landfill is probably near the top of the zone of saturation which would, therefore, be within 10 feet of the ground surface. Ground-water use in the valley of the DesPlaines River is mainly from the Silurian dolomite aquifer or from deeper sandstone aquifers. There are other waste disposal operations in this general area and it is possible that the quality of the water in the Silurian dolomite aquifer has already been affected.

This site is located on the edge of a major valley and under natural conditions would likely be in a zone of ground-water discharge. Under these conditions, the ground water from the site would tend to move into the intermittent stream, or to the south, through the surficial deposits, rather than downward into the deeper aquifers. This direction of movement could be changed by ground water development in the shallow aquifers.

Yours truly,

George Hughes

George M. Hughes
Associate Geologist
Northeastern Illinois Office
Section of Ground-Water Geology
and Geophysical Exploration

GMH/jge
cc: R. E. Bergstrom

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ILLINOIS STATE GEOLOGICAL SURVEY
NATURAL RESOURCES BUILDING
PEABODY EAST OF SOUTH SIXTH
URBANA, ILLINOIS 61801
TELEPHONE 217 344-1481
JOHN C. FRYE, CHIEF

Post Office I
Warrenville, Illinois 60555
November 2, 1970

Mr. Charles Clark
Environmental Protection Agency
535 West Jefferson Street
Springfield, Illinois 62706

Dear Mr. Clark:

This is in response to a request by Mr. Robert L. Murray, of the Will County Health Department, for a description of the hydrogeology in the vicinity of a proposed liquid sludge disposal site located in the southeast ¼ of Section 24, T. 35 N., R. 9 E., Will County.

The site was visited on October 29, 1970. It is located between the Rock Island and Pacific Railroad and the levee on the north side of the Illinois and Michigan Canal. The site is enclosed by a berm approximately 10 feet high, and water and marsh grasses are present within this berm. The water probably represents the top of the zone of saturation.

No exposures of the subsurface materials were present on the site, however, regional maps in the files of the Illinois State Geological Survey indicate that the glacial drift in this area is probably less than 30 feet thick and consists primarily of sand and gravel outwash. The bedrock underlying the drift is the Silurian dolomite aquifer, which outcrops north of the Rock Island and Pacific Railroad two to three hundred feet north of the proposed site. We have records of two wells within one-half mile of the proposed site in our files. These files are not up to date, and other wells may be present in the area.

Based on the topography, we would expect that ground-water movement under natural conditions would be towards the Illinois and Michigan Canal. However, this could be modified if the shallow aquifers in this area are being pumped. If dissolved solids are leached from the sludge disposed of in this site they will move with the ground water to either the canal or a nearby pumping well. Attenuation of these dissolved solids will be minimal in the fractured rocks and gravels which are likely to be present in the vicinity.

It should be noted that there is already a considerable amount of waste disposal in this general area, and, in fact, a solid waste disposal site is opera-

ting immediately north of the proposed site across the Rock Island and Pacific Railroad. Under these circumstances, it is conceivable that the ground water in this area is already degraded to some extent.

The hydrogeologic data on which this report is based is from regional maps and a surficial examination of the site. This data should be confirmed by a site investigation, including borings.

Yours truly,

G. M. Hughes

George M. Hughes
Associate Geologist
Northeastern Illinois Office
Section of Ground-Water Geology
and Geophysical Exploration

GMH/je
cc: Robert L. Murray